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BOARD DIPLOMA EXAMINATION, (C-16)
MARCH/APRIL—2021
DEEE - FIFTH SEMESTER EXAMINATION

POWER ELECTRONICS AND PLC

Time : 3 hours]   [*Total Marks* : 80

PART—A   3×10=30

Instructions :   (1)   Answer **all** questions.

(2)   Each question carries **three** marks.

(3)   Answers should be brief and straight to the point and shall not exceed five simple sentences.

1.   Draw ISI symbols for the following :

(a)   SUS

(b)   SBS

(c)   LASCR

2.   Compare SCR and GTO SCR in any three aspects.

3.   State the need of freewheeling diode in converters.

4.   Classify inverters based on type of output voltage.

5.   Define cycloconverter. Write any one application of cycloconverter.

6.   List any six types of disturbances in commercial power supply.

7.   Draw light dimmer circuit using DIAC/TRIAC.

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8. Define transfer function.

9. Draw ladder diagram for AND, OR and NOT gates.

10. List the types of timers and counters used in PLC.

PART—B

Instructions : (1) Answer *any* **five** questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

11. Explain SCR circuit triggered by UJT with neat diagram and necessary waveforms.　　10

12. Explain the working of SCR with its static V-I characteristics.　　10

13. Explain the working of single-phase full-wave fully-controlled converter with RL load along with neat waveforms.　　10

14. *(a)* Explain the control modes of chopper.　　5

(b) Explain the working of single-phase full-bridge inverter with a diagram.　　5

15. Explain emergency lamp circuit using SCR with a neat diagram.　　10

16. Explain the closed loop system of water level controller with neat diagram.　　10

17. *(a)* Compare open loop system and closed loop system in any five aspects.　　5

(b) Draw the block diagram of PLC and explain its parts.　　5

18. Explain the ladder diagram for the following :

(a) Staircase lighting　　5

(b) Star-delta starter　　5

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